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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,674	10/25/2001	Robert C. Ladner	D2033-708931	2458

37462 7590 10/05/2010

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EXAMINER	
BOESEN, CHRISTIAN C	
ART UNIT	PAPER NUMBER
1639	

NOTIFICATION DATE	DELIVERY MODE
10/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@LALaw.com
gengelson@LALaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/045,674	LADNER ET AL.	
	Examiner	Art Unit	
	CHRISTIAN BOESEN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *227-234,240,243 and 248-262* is/are pending in the application.

4a) Of the above claim(s) *248-262* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *227-234,240 and 243* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/07/2008, 09/05/2008, 11/07/2008, 04/08/2009, 11/09/2009, 02/04/2010 and 06/24/2010*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Non-Final Office Action is responsive to the communication received 04/30/2009.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/30/2009 has been entered.

Claim Status

Claim(s) 1-226, 235-239, 241-242 and 244-247 have been canceled as filed on 04/30/2009.

Claim(s) 227 have been amended as filed on 04/30/2009.

Claim(s) 227-234, 240, 243 and 248-262 are currently pending.

Claim(s) 248-262 have been withdrawn.

Claim(s) 227-234, 240 and 243 are being examined in this application.

Election/Restrictions

Applicant's election with traverse in the reply filed on 04/26/2005 of group IV, claims 227-234, 240 and 243 is noted. New/amended claim(s) 227 are grouped with the elected group IV invention.

Discussion and Answer to Argument

Applicant's arguments have been fully considered but they are not persuasive for the following reasons (in addition to reasons of record). Applicant argues that claims 248-262 should be examined because claims 248-262 properly limit examined claims of the group IV invention.

In response to Applicant's arguments, the Examiner respectfully disagrees. The restriction of 02/28/2005 contained five groups, three of which were drawn to products: Group III a library of genetic packages, Group IV a library of a collection of members of a diverse family of peptides and Group V a nucleic acid vector. The Applicant elected Group IV and later submitted new claims 248-262 that fall within non-elected groups III or V. Thus, claims 248-262 are not in the elected Group IV and are not examined.

Applicant's argument would be true if "dependent" claims 248-262 actually provided some further limitation for the subject matter in claims 227-234, 240, and 243. However, this is not the case (i.e., these claims were improperly listed as dependent claims). Thus, Applicant's argument is moot. Furthermore, even if, assuming *arguendo*, claims 248-262 did further limit claims 227-234, 240 and 243 (which is not the case), Applicant elected a library of proteins, not a library of protein-linkers or a library phage particles and. As discussed in the restriction, a search for Applicant's elected proteins would not necessarily turn up art for the protein-linkers or phage particles set forth in withdrawn claims 249-262. For example, the elected proteins could be located in journals drawn to solid-phase peptide synthesis rather than phage display. In addition, the peptides can be separately classified and thus would require a separate burdensome classification search (e.g., see class 510, subclass 810 wherein peptides bound to a solid support

are set forth; see also class 530, subclass 350 for peptides that are not bound to a solid-support; see also class 424, subclass 192.1 wherein "fusion proteins" like the ones used in phage display are set forth; compare also class 506, subclass 14 to class 506, subclass 18 wherein a "displayed" library such as a library of phage particles is classified separately from a library proteins that are not displayed). Here, Applicant elected a library of peptides, polypeptides, or proteins that were not displayed (i.e., classified in 506, subclass 18) rather than a library that is displayed on a phage with the use of a linker (e.g., see class 506, subclass 14). This can be clearly seen from Applicant's election of Group IV (i.e., library of peptides, proteins, etc.) rather than Group III (i.e., a phage library).

Claim 249 reads, "wherein the diversity of peptides, polypeptides or proteins is displayed on genetic packages." Original claim 11, drawn to non-elected Group III reads, "A library comprising a collection of genetic packages that display a member of a diverse family of peptides, polypeptides or proteins …." The Examiner fails to see the difference. That is reversing the subject/verb order does not change the meaning of the claim. Writing a claim drawn a diversity of peptides that is "displayed" on a collection of genetic packages is exactly the same as writing a claim drawn to a collection of genetic packages that display the diversity of peptides. Claim 248, for example, doesn't state that the library of peptides have been "cleaved" from the genetic packages. Furthermore, a phage (an the fusion peptides expressed thereon) doesn't further limit a peptide as erroneously purported by Applicant and even if did (which is not the case, see above) it would be withdrawn from consideration as drawn to non-elected subject matter as a result of the divergent subject matter and burdensome search.

Priority

This application for patent is filed under 35 U.S.C. 111(a) of 10/045,674 (filed on 10/25/2001).

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Acknowledgment is made for priority to a CIP application 10/000,516 (filed on 10/24/2001), a CIP application 09/837,306 (filed on 04/17/2001) and a provisional application 60/198069 (filed on 04/17/2000).

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 08/07/2008, 09/05/2008, 11/07/2008, 04/08/2009, 11/09/2009, 02/04/2010 and 06/24/2010 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the Examiner.

Previous Rejections and/or Objections

Any objections and/or rejections raised in the previous Office Action but not reiterated below are considered to have been withdrawn in view of the Applicant's amendments filed on 04/30/2009.

New Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 227-234, 240 and 243 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 227 is drawn to a library of peptides, polypeptides or proteins, wherein the peptides, polypeptides or proteins each comprise a VH CDRl and a VH CDR2. A polypeptide containing a VH CDRl and a VH CDR2 is not an art recognized term. A polypeptide containing a VH CDRl (e.g., SEQ ID NO 636) and a VH CDR2 (e.g., SEQ ID NO 637) is effectively a random set of expressed amino acid residues that has no known utility. If Applicants instead intend the product to be a library of antibodies an amendment of "the antibodies or antibody fragments each comprise a VH CDRl and a VH CDR2" would overcome this rejection.

New Claim Rejections - 35 USC § 112 - 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 227-234, 240 and 243 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 227 is indefinite for reciting the phrase "the peptides, polypeptides or proteins each comprise a VH CDRl and a VH CDR2" because one of ordinary skill in the art could not reasonably determine the metes and bounds of this limitation. The instant term does

not appear to be an established term in the art, but rather a term that applicants are using to categorize certain antibodies. An amendment of "the antibodies or antibody fragments each comprise a VH CDRl and a VH CDR2" would overcome this rejection.

Claim Rejections - 35 USC § 103 - Necessitated by Amendment

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Secondary considerations (objective evidence of nonobviousness): a) commercial success; b) long felt need; c) evidence of unexpected results; d) skepticism of experts; and e) copying.

Claims 227-234, 240 and 243 are obvious over Pini in view of Stewart and Yang as evidenced by Tomlinson and Brezinschek:

Claims 227-234, 240 and 243 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pini (08/21/1998) Journal of Biological Chemistry volume 273 pages 21769 to 21776 in view of Stewart (02/01/1993) Journal of Experimental Medicine volume 177 pages 409 to 418 and Yang (1995) Journal of Molecular Biology volume 254 pages 392

to 403 as evidenced by Tomlinson (10/05/1992) Journal of Molecular Biology volume 227 pages 776 to 798 and Brezinschek (05/1997) Journal of Clinical Investigation volume 99 pages 2488 to 2501. This rejection is necessitated by Applicant's amendatory material of "comprising ... the ... SEQ ID NO" to claim 227.

Applicant's claimed invention is broad and is generally directed to a library of polypeptides that include portions related to antibody regions VH CDR1 and VH CDR2 sequences. The Applicant's invention involves the specific sequences -X_1-Y-X_2-M-X_3- (SEQ ID NO:636) and X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- (SEQ ID NO:637), and may also contain VH CDR3, VH 3-23 framework regions and an antibody light chain. Claim 227 recites:

> "A library comprising a collection of members of a family, the family comprising a diversity of peptides, polypeptides or proteins, wherein the peptides, polypeptides or proteins each comprise a VH CDRl and a VH CDR2 and are encoded by DNA sequences comprising sequences encoding (a) the VH CDR1, wherein the VH CDRl comprises the amino acid sequence according to the formula -X_1-Y-X_2-M-X_3- (SEQ ID NO:636), wherein X_1, X_2, and X_3 are independently selected from the group consisting of A, D, E, F, G, H, I, K, L, M, N, P, Q, R, S, T, V, W, and Y, and (b) the VH CDR2, wherein the VH CDR2 comprises the amino acid sequence according to the formula X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- (SEQ ID NO:637), wherein X_4 and X_5 are independently selected from the group consisting of Y, R, W, V, G, and S, X_6 is selected from the group consisting of P and S, and X_7 and X_8 are independently selected from the group consisting of A, D, E, F, G, H, I, K, L, M, N, P, Q, R, S, T, V, W, and Y."

Regarding **claims 229 and 231-233** are product-by-process claims and the process recited in this claim is not given any patentable weight. See MPEP 2113, "[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which

reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith."

With regards to **claim 227**, Pini and Stewart teach SEQ ID NO 636 (e.g., VH CDR1) (see results 16, 1 and 53 below and Pini as evidenced by Tomlinson e.g., antibody DP-47, see Figure 2b). Compared to SEQ ID NO 637 (e.g., VH CDR2) Pini teaches differences are X_4 = A and X_6 = G (e.g., underlined in result 16 below) and Pini teaches the difference is the first G = S (e.g., clones H10 and L19, see Pini, Table II positions 50 and 52). Steward teaches the difference is X_6 = G (e.g., underlined in result 1 below) and Steward teaches differences are the first G = S and T = I (e.g., underlined in result 53 below), thus, in five sequences containing SEQ ID NO 636 and sequences similar to SEQ ID NO 637 Pini and Stewart teach that in VH CDR2 X_4 can be A, S, G or Y and X_6 can be G or S meeting the claim limitations of X_4 and X_6 in SEQ ID NO 637. Wang teaches saturation mutagenesis of antibody CDRs including VH CDR1 and VH CDR2 (see Abstract).

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This page gives you Search Results detail for the Application 10045674 and Search
Result 20100916_173349_us-10-045-674d-63614x637.rup.

Go Back to previous page

                    GenCore version 6.3
          Copyright (c) 1993 - 2010  Biocceleration Ltd.

OM protein - protein search, using sw model
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Run on:         September 16, 2010, 18:21:31 ; Search time 79 Seconds
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                                          1722.987 Million cell updates/sec

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Total number of hits satisfying chosen parameters:      11627486

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

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                 Listing first 150 summaries

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RESULT 16

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DT   20-FEB-2007, sequence version 1.
DT   02-MAR-2010, entry version 13.
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DE   Flags: Fragment;
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OC   Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;
OC   Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   NUCLEOTIDE SEQUENCE.
RX   MEDLINE=98371014; PubMed=9705314; DOI=10.1074/jbc.273.34.21769;
RA   Pini A., Viti F., Santucci A., Carnemolla B., Zardi L., Neri P.,
RA   Neri D.;
RT   "Design and use of a phage display library. Human antibodies with
RT   subnanomolar affinity against a marker of angiogenesis eluted from a
RT   two-dimensional gel.";
RL   J. Biol. Chem. 273:21769-21776(1998).
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   EMBL; AJ006111; CAA06862.1; -; mRNA.
DR   IPI; IPI00916434; -.
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DR   InterPro; IPR003596; Ig_V-set_sub.
DR   Gene3D; G3DSA:2.60.40.10; Ig-like_fold; 2.
DR   Pfam; PF07686; V-set; 2.
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RESULT 1

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DT   20-FEB-2007, sequence version 1.
DT   23-MAR-2010, entry version 13.
DE   SubName: Full=VH-3 family (VH26)D/J protein;
DE   Flags: Fragment;
GN   Name=VH-3 family (VH26)D/J;
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;
OC   Catarrhini; Hominidae; Homo.
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RC   TISSUE=Peripheral blood;
RX   MEDLINE=93147730; PubMed=8426111; DOI=10.1084/jem.177.2.409;
RA   Stewart A.K., Huang C., Stollar B.D., Schwartz R.S.;
RT   "High-frequency representation of a single VH gene in the expressed
RT   human B cell repertoire.";
RL   J. Exp. Med. 177:409-418(1993).
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   EMBL; X67069; CAA47454.1; -; Genomic_DNA.
DR   IPI; IPI00827788; -.
DR   PIR; S24248; S24248.
DR   SMR; A2NWX0; 26-90.
DR   STRING; A2NWX0; -.
DR   H-InvDB; HIX0176352; -.
DR   InterPro; IPR013783; Ig-like_fold.
DR   InterPro; IPR013106; Ig_V-set.
```

```
DR   InterPro; IPR003596; Ig_V-set_sub.
DR   Gene3D; G3DSA:2.60.40.10; Ig-like_fold; 1.
DR   Pfam; PF07686; V-set; 1.
DR   SMART; SM00406; IGv; 1.
PE   4: Predicted;
FT   NON_TER       1      1
FT   NON_TER      90     90
SQ   SEQUENCE   90 AA;  9846 MW;  EBF8E62181A223A2 CRC64;

  Query Match             100.0%;  Score 95;  DB 2;  Length 90;
  Best Local Similarity   38.9%;
  Matches   14;  Conservative   22;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 XYXMXXXXXXXXXXXXXXXXIXXSGGXTXYADSVKG 36
              :|:|:::::::::::::::::|::|||:|:|||||||
Db         30 SYAMSWVRQRPGKGLEWVSGISGSGGSTYYADSVKG 65
```

RESULT 53

```
A2NWX4_HUMAN
ID   A2NWX4_HUMAN            Unreviewed;        97 AA.
AC   A2NWX4;
DT   20-FEB-2007, integrated into UniProtKB/TrEMBL.
DT   20-FEB-2007, sequence version 1.
DT   02-MAR-2010, entry version 10.
DE   SubName: Full=VH-7 family (N54P3)D/J protein;
DE   Flags: Fragment;
GN   Name=VH-7 family (N54P3)D/J;
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;
OC   Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   NUCLEOTIDE SEQUENCE.
RC   TISSUE=Peripheral blood;
RX   MEDLINE=93147730; PubMed=8426111; DOI=10.1084/jem.177.2.409;
RA   Stewart A.K., Huang C., Stollar B.D., Schwartz R.S.;
RT   "High-frequency representation of a single VH gene in the expressed
RT   human B cell repertoire.";
RL   J. Exp. Med. 177:409-418(1993).
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; X67073; CAA47458.1; -; Genomic_DNA.
DR   PIR; S24252; S24252.
DR   SMR; A2NWX4; 1-97.
DR   STRING; A2NWX4; -.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR013783; Ig-like_fold.
DR   InterPro; IPR013106; Ig_V-set.
DR   InterPro; IPR003596; Ig_V-set_sub.
DR   Gene3D; G3DSA:2.60.40.10; Ig-like_fold; 1.
DR   Pfam; PF07686; V-set; 1.
DR   SMART; SM00406; IGv; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
PE   4: Predicted;
```

```
FT   NON_TER       1      1
FT   NON_TER      97     97
SQ   SEQUENCE   97 AA;  10922 MW;  902F4C915457D3F3 CRC64;

  Query Match             87.4%;  Score 83;  DB 2;  Length 97;
  Best Local Similarity   33.3%;
  Matches   12;  Conservative   22;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 XYXMXXXXXXXXXXXXXXXXIXXSGGXTXYADSVKG 36
              :|:|:::::::::::::::::|::|| : :|||||||
Db          8 DYYMSWIRQAPGKGLEWVSYISSSGSTIYYADSVKG 43
```

With regards to **claims 228, (230 and 240) and (234 and 243)**, Pini teaches a library of antibodies containing a VH CDR3 e.g., a human antibody library (see Abstract), a library of antibodies containing an immunoglobulin light chain e.g., a human antibody library (see Abstract and page 21770 left top) and a library of antibodies containing VH 3-23 framework regions e.g., the VH is DP-47 (see page 21770 left top) and DP-47 contains the VH 3-23 framework regions as evidenced by Brezinschek (see Brezinschek, Abstract).

With regards to **claims 228 and (230 and 240)**, Stewart teaches a library of antibodies containing a VH CDR3 e.g., antibodies produced by circulating B cells of four individuals and two patients (see Abstract) and a library of antibodies containing an immunoglobulin light chain e.g., antibodies produced by the circulating B cells contain light chains (see Abstract).

With regards to **claims 228 and (230 and 240)**, Yang teaches a library of antibodies containing a VH CDR3 e.g., the library of human antibody b4/12 mutants include a VH CDR3 (see Abstract and Figure 1) and a library of antibodies containing an immunoglobulin light chain e.g., the library of human antibody b4/12 mutants include a light chain (see Abstract and Figure 1).

One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success in arriving at the Applicant's invention as claimed with the above cited references before them. Pini, Stewart and Yang are directed towards libraries of antibody polypeptides that include portions related to antibody regions VH CDR1 and VH CDR2 sequences. Pini and Stewart teach libraries that include polypeptides that code for -X_1-Y-X_2-M-X_3- in the VH CDR1 region and a VH CDR2 region that is almost identical to SEQ ID NO 637. Pini and Stewart teach in VH CDR2 X_4 can be A, G or Y and X_6 can be G or S meeting the claim limitation of X_4 is Y, R, W, V, G or S and X_6 is P or S. One of ordinary skill in the art would have recognized the advantages of using the approach of varying X_4 and X_6 to other residues from known antibodies because Yang teaches that saturation mutagenesis of CDRs, including VH CDR2, can result in an improvement in antibody affinity (see Abstract). Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Common Ownership of Claimed Invention Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

No claim is allowed.

If Applicants should amend the claims, a complete and responsive reply will clearly identify where support can be found in the disclosure for each amendment. Applicants should point to the page and line numbers of the application corresponding to each amendment, and provide any statements that might help to identify support for the claimed invention (e.g., if the amendment is not supported *in ipsis verbis*, clarification on the record may be helpful). Should Applicants present new claims, Applicants should clearly identify where support can be found in the disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to CHRISTIAN BOESEN whose telephone number is 571-270-1321. The Examiner can normally be reached on Monday-Friday 9:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Christopher S. Low can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian Boesen/
Examiner, Art Unit 1639

/Jeffrey S. Lundgren/
Primary Examiner, Art Unit 1639